

Bibliometric analysis of the articles published in the Rawal Medical Journal between 2008 and 2019

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Objective: To present bibliometric analysis of the articles published in Rawal Medical Journal (RMJ) from 2008 to 2019.

Methodology: We used the Scopus database, during the months of August and September, 2020, for the retrieval and analysis of RMJ publications. We downloaded the retrieved dataset in the Comma Separated Values (CSV) format and transferred the file to a Microsoft Excel Spreadsheet for analysis. We also compared the citations of top 10 most cited RMJ publications in the Scopus to the Google Scholar citations.

Results: A total of 1,487 articles were found, published in 12 volumes and 42 issues, with an average of 3.91 pages per document. The articles published in RMJ received 1,003 citations in the

Scopus database with an impact of 0.67 citations per article. The Shifa International Hospital, Islamabad was the most contributing organization with 82 publications and Ashfaq Ahmed was the most contributing author with 21 publications. The authors, outside Pakistan, belonged to 31 countries and Jordan was ranked first with 119 publications.

Conclusion: A promising growth in the number of publications in RMJ is observed during last 12 years. However, there is a dire need to encourage authors to write on innovative ideas in collaboration with international researchers to enhance the citation impact of articles published in the journal.

Keywords: Bibliometric analysis, bibliometrics, serial publications, biomedical research, Rawal Medical Journal.

INTRODUCTION

Journals are an important medium of current and up-to-date scholarly and scientific communications.¹ It provides a platform to collect, confirm and disseminate quality research information.² The need to monitor and maintain bibliographic control of publications has also been getting popularity.³ Bibliometric analysis helps to assess and evaluate bibliographic control on a much broader scale through citation and metric management system.⁴

Elsevier BV Company, United States launched the Scopus database in 2004, claiming to be comprehensive coverage of scientific writing.⁵ The databases have been extensively used to present the bibliometric and scientometric studies as well as used for the provision of bibliographic details of knowledge.⁶ These studies help to elucidate the various characteristics of research publications.³ The term bibliometric is the brainchild of Alan Prichard (1969), earlier known as statistical bibliography.⁷ The findings of bibliometric studies justify the research expenditures and assist in decision-making process for further allocation of resources.

Rawal Medical Journal (RMJ) is an official journal of the Pakistan Medical Association Rawalpindi-Islamabad

Branch. It has been publishing original research articles, review papers, case reports, etc. related to various disciplines of medical sciences and nursing since 1975. It has been publishing quarterly since 2011, earlier it was published biannually. It has been indexed in the emerging sources citation index of ISI Web of Science database since 2015 and in Scopus database since 2008.

The objective of this study is to present bibliometric analysis of the articles published in RMJ during the period of 2008 and 2019 and as reflected in the Scopus database. This study is important as it presents a data driven assessment of contribution, research trends and citation impact of articles published in RMJ. Therefore, the results of this study will be helpful for editors, contributors and readers of RMJ.

METHODOLOGY

We conducted a quantitative bibliometric study of the documents published in RMJ between 2008 and 2019. We used the Scopus database of Elsevier at the King Saud bin Abdul Aziz University for Health Sciences, Saudi Arabia during the months of August and September, 2020 for the publication analysis. We

applied the following search strategy in the Scopus database to get the required dataset:

“SRCTITLE (Rawal AND Medical AND Journal) AND (EXCLUDE (PUBYEAR, 2020))”

We downloaded the retrieved dataset in the Comma Separated Values (CSV) format on August 23, 2020 and transferred the file to a Microsoft Excel Spreadsheet for analysis. We also retrieved the most-cited ten documents identified in the Scopus database from Google Scholar on the same date for comparison. Our study was exempted from institutional review board approval because the data are publically available and no human or animal data were used.

RESULTS

A total of 1,487 articles were published in RMJ from 2008 to 2019 with an average of 123.92 articles per year. The maximum number of articles ($n = 201$; 13.51%) were published in 2018 and the minimum number of articles ($n = 80$; 5.37%) were published in 2012. There has been a visible fluctuation in the number of publications, however, during six years from 2013 to 2018 an uprising trend is observed (Table 1).

Overall there is a remarkable growth from 83 publications in 2008 to 194 publications in 2019. Almost one-third of the documents ($n = 533$; 36%) were published in the first six years and two-third ($n = 954$; 64%) in the last six years. A total of 12 volumes with 42

issues were published from 2008 to 2019. All the 1,487 articles were published on 5,820 pages with an average of 3.91 pages per article. Almost 2,009 (34%) pages were published in the first six years and 3,812 (66%) pages in the last six years. This trend has been synchronized with a percentage of articles.

The articles published in RMJ received 1,003 citations in the Scopus database with an impact of 0.67 citations per article (Table 1). The in-depth analysis of citations shows that out of 1,487 documents, only 460 (31%) documents received citations, while the majority of documents ($n = 1,027$; 69%) have not received any citations till the date of data collection. Surprisingly, only eight documents reached in h-index scale, which means that eight documents have at least eight or more than eight citations as shown in the Scopus database. Out of 460 cited documents, 262 documents have received only one citation each and 88 and 43 documents received 2 and 3 citations each, respectively. The Scopus database showed five categories of document type such as article, editorial, review, erratum and letter. The results show that vast majority of documents ($n = 1394$, 93.75%) were published as articles (including original research, short communication and case report), followed by editorials ($n = 40$, 2.69%), reviews ($n = 29$; 1.95%), erratum ($n = 18$, 1.21%) and letters ($n = 6$, 0.4%), as indexed in the Scopus database.

Table 1: Distribution of publications by year along with number of pages and citations.

Year	Volume, Issues	Documents (%)	Total Pages (%)	Total Citations and Citation Impact
2008	Vol-33, No.1,2	83 (5.58%)	266 (4.56%)	190 (2.28)
2009	Vol-34, No.1,2	75 (5.04%)	240 (4.12%)	123 (1.64)
2010	Vol-35, No.1,2	75 (5.04%)	260 (4.46%)	108 (1.44)
2011	Vol-36, No.1-4	94 (6.32%)	329 (3.86%)	110 (1.17)
2012	Vol-37, No.1-4	80 (5.37%)	453 (7.79%)	81 (1.01)
2013	Vol-38, No.1-4	126 (8.47%)	461 (7.93%)	119 (0.94)
2014	Vol-39, No.1-4	133 (8.94%)	475 (8.17%)	68 (0.51)
2015	Vol-40, No.1-4	134 (9.01%)	498 (8.56%)	61 (0.45)
2016	Vol-41, No.1-4	137 (9.21%)	523 (8.99%)	38 (0.27)
2017	Vol-42, No.1-4	155 (10.42%)	620 (10.66%)	48 (0.30)
2018	Vol-43, No.1-4	201 (13.51%)	790 (13.59%)	46 (0.22)
2019	Vol-44, No.1-4	194 (13.04%)	906 (15.58%)	11 (0.05)
Total	12 Vol & 42 Issues	1,487	5,821	1,003 (0.67)

The analysis of articles reveal that the authors affiliated with the Shifa International Hospital, Islamabad contributed 82 articles and is ranked first followed by the King Hussein Cancer Center of Jordan and the Shifa College of Medicine. It is interesting to note that three foreign institutions find place in the top ten contributing institutions to RMJ. Five organizations contributed more than 50 documents each during the targeted period (Table 2). Table 2 also shows that the authors affiliated with the top ten ranked institutions contributed more than one-third ($n = 527$; 35.44%) of the total articles published in the RMJ.

The authors affiliated to 31 countries, other than Pakistan, have been contributing their valuable research to RMJ during the projected period of 12 years. The Scopus database indexes the record of every author individually. Therefore, in case the authors from different countries collaborate with each, the article is indexed in the list of both countries and their affiliated institutions. The authors affiliated to top ten institutions in foreign countries includes Jordan with 119 (8%) articles followed by Malaysia with 100 (6.72%), Iran with 63 (4.23%), South Korea with 37 (2.48%), Saudi Arabia with 28 (1.88%), India with 23 (1.54%), Iraq with 13 (0.87%), United Kingdom with 11 (0.73%), United States with 8 (0.53%) and Egypt with 6 (0.40%) articles and were ranked from first to tenth respectively. There are only two countries, whose contribution has reached in three digits (≥ 100). Affiliated institution was missing in 18 articles.

Table 3 presents the list of 16 authors who contributed 10 or more articles each to RMJ. Ashfaq Ahmad has emerged as the most contributing author with 21 publications followed by Nisar Ahmed Shaikh with 18 publications. Three foreign authors are also included amongst the most contributing authors.

Table 4 presents the top ten most cited articles in the Scopus database along with their citations found in the google scholar. The ten most cited articles received 143 citations with an average of 14.3 citations per paper in the Scopus database. The numbers of citations of each article were also traced in the Google Scholar and it was found that these articles received 364 citations with an average of 36.4 citations per paper. It shows that the

Table 2: Top 10 most contributing institutions.

Rank	Institutions	No. of Publications (%)
1.	Shifa International Hospital, Pakistan	82 (5.51%)
2.	King Hussein Cancer Center, Jordan	66 (4.43%)
3.	Shifa College of Medicine, Pakistan	65 (4.37%)
4.	University of Lahore, Pakistan	64 (4.30%)
5.	Riphah International University, Pakistan	56 (3.76%)
6.	Dow University of Health Sciences, Pakistan	47 (3.16%)
7.	University of Sindh, Pakistan	40 (2.68%)
8.	Pakistan Institute of Medical Sciences, Pakistan	37 (2.48%)
9.	Universiti Kebangsaan, Malaysia	36 (2.42%)
10.	Tabriz University of Medical Sciences, Iran	34 (2.28%)

coverage of Google Scholar is wider than the Scopus database. The article “Knowledge, attitude and practice about diabetes among diabetes patients in Western Nepal” contributed by foreign authors and published in 2008 got maximum citations in both databases. Amongst the most-cited documents, nine were published between the period of 2008 to 2012 and four articles were published in 2008. It shows that as the paper becomes older the numbers of citations also increase.

DISCUSSION

The results of our study reveals that the quantity of articles published in RMJ has significantly increased from 83 articles in 2008 to 194 in 2019. Similar trends of increase in the number of publications with the passage of time was also identified in the previous bibliometric studies conducted on single medical journals.^{6,9-13} Moreover, our study reveals that RMJ mostly publishes original research articles as compared to other types of documents. In this regard our study supports the result of previous studies.^{6,9-13}

However, the citation count is the most popular parameter, and getting citations mean getting attention from other peers. As far as the citation impact of RMJ is concerned, it has been recorded as 0.67 citation per document which needs to be improved for inclusion of RMJ in Web of Science Journal Citation Reports. Though, the contribution by foreign authors from 31 countries during the targeted period shows the credibility and popularity of RMJ. This is also an indication of trust in RMJ by the international community. Our results reveal that most-cited paper published in RMJ was authored by the foreign authors.

Table 3: Most prolific authors in RMJ.

Rank	Author's Name	Affiliated Institutions	No. of Publications
1.	Ahmad, Ashfaq	University Institute of Physical Therapy, University of Lahore, Pakistan	21
2.	Shaikh, Nisar Ahmed	Chandka Medical College, Larkana, Pakistan	18
3.	Kim, Youg Han	Inje University, Republic of Korea	15
3.	Noor, Rabiya	University Institute of Physical Therapy, University of Lahore, Pakistan	15
4.	Bashir, Muhammad Salman	University Institute of Physical Therapy, University of Lahore, Pakistan	14
5.	Hoo, Fan Kee	Universiti Putra, Malaysia	13
5.	Khokhar, Nasir	Shifa International Hospital, Pakistan	13
5.	Malik, Arshad Nawaz	Department of Physical Therapy, Shifa Tameer-e-Millat University, Pakistan	13
5.	Tanveer, Fahad	University Institute of Physical Therapy, University of Lahore, Pakistan	13
7.	Amjad, Imran	Riphah International University, Islamabad Pakistan	12
7.	Channa, Naseem Aslam	Institute of Biochemistry, University of Sindh, Jamshoro, Pakistan	12
8.	Ghanghro, Allah Bux	Institute of Biochemistry, University of Sindh, Jamshoro, Pakistan	10
8.	Ghazanfar, Haider	Shifa College of Medicine, Shifa Tameer-e-Millat University	10
8.	Gilani, Syed Amir	University Institute of Physical Therapy, University of Lahore, Pakistan	10
8.	Jung, Jae Wook	Inje University, Republic of Korea	10
8.	Khan, Shaista	Biochemistry, Liaquat University of Medical & Health Sciences, Jamshoro Sindh, Pakistan.	10

It shows that increase in the contribution from foreign authors may increase the impact factor of the journal.

In Pakistan, several bibliometric studies have been carried out on Pakistani medical journals. Javed and Shah analyzed the citations of 32 articles that were published in two issues of RMJ during 2006.⁸ A bibliometric study of the Journal of Ayub Medical College (JAMC) from 1997 to 2006 reported that 572 articles were published with an average of 57.2 articles

per year and three-author pattern was found to be favorite.⁹ Baladiet al conducted a bibliometric study of articles published in Pakistan Pediatric Journal from 1996 to 2015. They found that a total of 583 research items were published in 20 years and half of the articles were contributed by the authors affiliated with the institutions.¹⁰ Saleem et al, analyzed 749 documents published in PAFMJ from 2011 to 2015. They found that 28% of the articles had three authors and most of the

Table 4: Top 10 most-cited articles in RMJ.

S. No.	Most-Cited Articles	Scopus Citation	Google Scholar Citations
1.	Upadhyay DK, et al. Knowledge, attitude and practice about diabetes among diabetes patients in Western Nepal. 2008; 33 (1): 8-11.	39	116
2.	Rashid AA, et al. Oh no! Now I have diabetes. 2018; 43 (4): 776-8.	16	20
3.	Sabih F, et al. There is significant stress among parents having children with autism. 2008; 33 (2): 214-6.	16	51
4.	Memon W, et al. Incidence of thyroid carcinoma in multinodular goiters. 2010; 35 (1): 65-7.	14	33
5.	Khan SJ, et al. Malaria can lead to Thrombocytopenia. 2008; 33 (2): 183-5.	11	38
6.	Kumar B, et al. Superiority of laparoscopic appendectomy over open appendectomy: the Hyderabad experience. 2008; 33 (2): 165-8.	11	31
7.	El-Sayed NM, et al. Relationship between Toxocaracanis infection and schizophrenia, 2012; 37 (02): 155-61.	10	13
8.	Sushel C, et al. Histopathological pattern of diagnoses in patients undergoing thyroid operations, 2009; 34 (1): 14-6.	10	36
9.	Rehman R, et al. Role of Progesterone in human embryo implantation, 2012; 37 (2): 194-8.	8	12
10.	Omar A, et al. Intravenous Paracetamol (Perfalgan) for Analgesia after Cesarean Section: A double blind randomized controlled study, 2011; 36 (4): 269-73.	8	14

articles were published on the subject of Pathology followed by Surgery and Medicine.¹¹ Memon presented the bibliometric analysis of 7,245 documents published in JPMA from 1965 to 2018 using Scopus database. The study revealed that 26% of the total publications were contributed by the authors affiliated with The Aga Khan University, Karachi.¹² It shows that most of the authors prefer to publish their articles in a journals being published from their cities.

In Saudi Arabia, a bibliometric study of 7,700 articles published in the Saudi Medical Journal from 1979 to 2019 disclosed that there has been remarkable growth from 20 documents in 1979 to 205 in 2019.⁶ Hussain et al presented the bibliometric indicators of 215 documents published in the 16 issues of the Journal of Saidu Medical College from 2007 to 2017 with an average of 13.43 documents per issue. They found that 93% articles were published as original research articles. Moreover, most of the articles were related to the subject of surgery, community medicine and medicine.¹³

The estimation of scholarly research published in journals is a vital indicator to gauge the research growth in a specific field of knowledge. The findings of innovative research provide strength to the body of existing knowledge, obligatory for the researchers and play a vigorous role in the development of profession.¹⁴ This study is limited to 42 issues of RMJ and the results cannot be generalized to other medical journals.

CONCLUSION

A promising growth in the number of publications in RMJ is observed during last 12 years. The research contribution of international researchers based in 31 countries reflects the worldwide credibility of the journal. Furthermore, indexation in the well reputed databases such as Scopus and ISI Web of Science as well as open access policy of the journal also attracted the authors from all over the world. However, the citation impact of the articles published in RMJ is found to be low. There is a dire need to encourage authors to write

on innovative ideas in collaboration with international researchers to enhance the citation impact of articles published in the journal.

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